CLAIMS

What is claimed is:

1. A purified infection-specific protein comprising an amino acid sequence selected from the group consisting of:

(a) SEQ ID NO: 2,

(b) SEQ ID NO: 4,

(c) SEQ ID NO: 6,

(d) SEQ ID NO: 10,

(e) SEQ ID NO: 12,

(f) an amino acid sequence that differs from an amino acid sequence of (a) to (e) inclusive, by one or more conservative amino acid substitutions, and

(g) an amino acid sequence having at least 60% sequence identity to an amino acid sequence of (a) to (e) inclusive.

2. An isolated nucleic acid molecule encoding a protein according to claim 1.

3. An isolated nucleic acid molecule according to claim 2 wherein the nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of:

(a) SEQ ID NO: 1,

(b) SEQ ID NO: 3,

(c) SEQ ID NO: 5,

(d) SEQ ID NO: 9, and

(e) SEQ ID NO: 11.

4. A recombinant nucleic acid molecule comprising a promoter sequence operably linked to a nucleotide molecule according to claim 2.

5. A vaccine preparation comprising at least one purified peptide comprising at least 5 contiguous amino acids selected from the group consisting of:

(a) SEQ ID NO: 2,

(b) SEQ ID NO: 4,

(c) SEQ ID NO: 6,

(d) SEQ ID NO: 8,

(e) SEQ ID NO: 10,

(f) SEQ ID NO: 12,

(g) SEQ ID NO: 14,

(h) SEQ ID NO: 16, and

(i) SEQ ID NO: 18.

6. The vaccine preparation of claim 5 wherein the peptide comprises at least 10 contiguous amino acids of at least one of the specified sequences.

7. The vaccine preparation of claim 5 wherein the peptide comprises at least 15 contiguous amino acids of at least one of the specified sequences.

8. The vaccine preparation of claim 5 wherein the purified peptide comprises at least 20 contiguous amino acids of at least one of the specified sequences.

9. A vaccine preparation comprising an amino acid sequence selected from the group consisting of:

(a) SEQ ID NO: 2,

(b) SEQ ID NO: 4,

(c) SEQ ID NO: 6,

(d) SEQ ID NO: 8,

(e) SEQ ID NO: 10,

(f) SEQ ID NO: 12,

(g) SEQ ID NO: 14,

(h) SEQ ID NO: 16,

(i) SEQ ID NO: 18,

(j) an amino acid sequence that differs from an amino acid sequence of (a) to (i) inclusive, by one or more conservative amino acid substitutions, and

(k) an amino acid sequence having at least 60% sequence identity to an amino acid sequence of (a) to (i) inclusive.

10. A method of making a vaccine comprising combining a pharmaceutically acceptable excipient with a purified peptide having an amino acid sequence selected from the group consisting of:

(a) SEQ ID NO:2,

(b) SEQ ID NO:4,

(c) SEQ ID NO:6,

(d) SEQ ID NO:8,

(e) SEQ ID NO:10,

(f) SEQ ID NO:12,

(g) SEQ ID NO:14,

(h) SEQ ID NO:16,

(i) SEQ ID NO:18,

(j) an amino acid sequence that differs from an amino acid sequence of (a) to (i) inclusive, by one or more conservative amino acid substitutions,

(k) an amino acid sequence having at least 60% sequence identity to an amino acid sequence of (a) to (i) inclusive, and

(l) at least 10 contiguous amino acids from an amino acid sequence of (a) to (i) inclusive.

11. A method of vaccination, comprising administering a vaccine preparation according to claim 5 to a mammal.

12. A method of vaccination, comprising administering a vaccine preparation according to claim 9 to a mammal.

13. A method of detecting an infection-specific *Chlamydia* protein in a biological sample comprising: contacting the biological sample with at least one anti-*Chlamydia* antibody, which antibody is an infection-specific antibody, such that a reaction between the antibody and the infection-specific *Chlamydia* protein gives rise to a detectable effect, and detecting the detectable effect.

14. The method of claim 13 wherein the anti-*Chlamydia* antibody binds specifically to a peptide having an amino acid sequence selected from the group consisting of:

(a) SEQ ID NO: 2,
(b) SEQ ID NO: 4,
(c) SEQ ID NO: 6,
(d) SEQ ID NO: 8,
(e) SEQ ID NO: 10,
(f) SEQ ID NO: 12,
(g) SEQ ID NO: 14,
(h) SEQ ID NO: 16, and
(i) SEQ ID NO: 18.

15. A method of detecting an infection-specific anti-*Chlamydia* antibody in a biological sample comprising: contacting the biological sample with at least one *Chlamydia* peptide, which peptide is an infection specific peptide, such that a reaction between the peptide and the infection-specific anti-*Chlamydia* antibody gives rise to a detectable effect, and detecting the detectable effect.

16. The method of claim 15 wherein the *Chlamydia* peptide comprises at least 5 contiguous amino acids of a sequence selected from the group consisting of:

(a) SEQ ID NO: 2,
(b) SEQ ID NO: 4,
(c) SEQ ID NO: 6,
(d) SEQ ID NO: 8,
(e) SEQ ID NO: 10,
(f) SEQ ID NO: 12,
(g) SEQ ID NO: 14,
(h) SEQ ID NO: 16, and
(i) SEQ ID NO: 18.

17. The method of claim 15 wherein said *Chlamydia* peptide comprises an amino acid sequence selected from the group consisting of:

(a) SEQ ID NO: 2,
(b) SEQ ID NO: 4,

(c) SEQ ID NO: 6,

(d) SEQ ID NO: 8,

(e) SEQ ID NO: 10,

(f) SEQ ID NO: 12,

(g) SEQ ID NO: 14,

(h) SEQ ID NO: 16, and

(i) SEQ ID NO: 18.

18. A method of treating a *Chlamydial* infection comprising directing a therapeutic agent against a specific target, said target chosen from the group consisting of: (i) an infection-specific protein of *Chlamydia*, (ii) a gene that encodes an infection-specific protein of *Chlamydia* and (iii) an RNA transcript that encodes an infection-specific protein of *Chlamydia*, wherein said therapeutic agent interacts with said target to affect a reduction in pathology.